IGNITION SYSTEM (3RZ–FE)

18065–01

ON–VEHICLE INSPECTION

NOTICE:

"Cold" and "Hot" in these sentences express the temperature of the coils themselves."Cold" is from –10°C (14°F) to 50 °C (122 °F) and "Hot" is from 50 °C (122 °F) to 100 °C (212 °F).

1. INSPECT IGNITION COIL (WITH IGNITER) AND SPARK TEST (UNLEADED GASOLINE MODEL)

(a) Confirm DTC.

NOTICE:

If DTC is indicated, carry out troubleshooting in accordance with the procedure on the following DTC.

(b) Check that the spark occurs.

(1) Remove the ignition coils (with igniter).

(2) Using a 16mm (0.63 in) plug wrench, remove the spark plugs.

(3) Install the spark plugs to each ignition coils (with igniter), and connect the ignition coil connectors.

(4) Disconnect the 4 injector connectors.

(5) Ground the spark plugs.

(6) Check if spark occurs while engine is being cranked.

NOTICE:

- **Be sure to ground the spark plug, when checking.**
- **Replace the ignition coil when it is given an impact.**
- **Do not crank the engine for more than 2 seconds.**

If the spark does not occur, do the test as follow.

SPARK TEST

↓ NO

CHECK CONNECTION OF IGNITION COIL WITH IGNITOR CONNECTOR → BAD → Connect securely.

↓ OK

CHANGE IT TO NORMAL IGNITION COIL WITH IGNITOR AND PERFORM SPARK TEST AGAIN → OK → Replace ignition coil with ignitor.

↓ NO

CHECK POWER SUPPLY TO IGNITION COIL WITH IGNITOR
1. Turn ignition switch to ON.
2. Check that there is battery voltage at ignition coil positive (+) terminal.

→ BAD → Check wiring between ignition switch to ignition coil with ignitor.

↓ OK

CHECK RESISTANCE OF CAMSHAFT POSITION SENSOR (See page 18–3)

	Cold	Hot
Resistance:	**835 – 1,400 Ω**	**1,060 – 1,645 Ω**

→ BAD → Replace camshaft position sensor.

↓ OK

CHECK RESISTANCE OF CRANKSHAFT POSITION SENSOR (See page 18–3)

	Cold	Hot
Resistance:	**1,630 – 2,740 Ω**	**2,065 – 3,225 Ω**

→ BAD → Replace crankshaft position sensor.

↓ OK

CHECK IGT SIGNAL FROM ECM (See page 05–147) → BAD → Check ECM (See page 01–36)

↓ OK

REPAIR WIRING BETWEEN IGNITION COIL AND ECM

(c) Using a 16 mm (0.63 in.) plug wrench, install the spark plugs.
Torque: 19 N·m (194 kgf·cm, 16 ft·lbf)

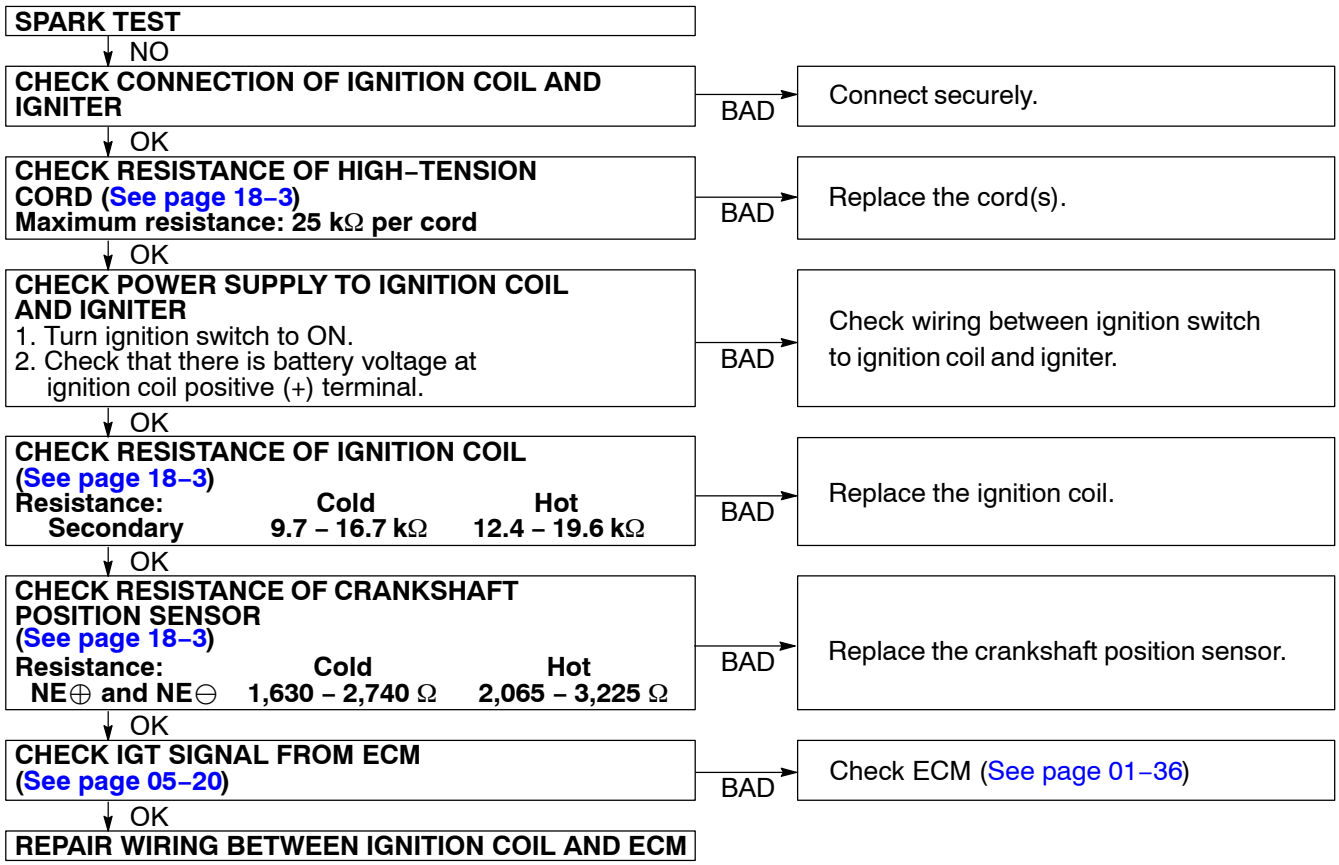
(d) Install the ignition coil with igniter.
Torque: 9.0 N·m (92 kgf·cm, 80 ft·lbf)

2. INSPECT IGNITION AND SPARK TEST (LEADED GASOLINE MODEL)

(a) Check that the spark occurs.
(1) Disconnect the high–tension cords from the spark plugs.
(2) Using a 16mm (0.63 in) plug wrench, remove the spark plugs.
(3) Install the spark plugs to each high–tension cord.
(4) Disconnect the 4 injector connectors.
(5) Ground the spark plug.
(6) Check if spark occurs while engine is being cranked.

NOTICE:
- **Be sure to ground the spark plug, when checking.**
- **Do not crank the engine for more than 2 seconds.**

If the spark does not occur, perform the test as follows.



(b) Using a 16 mm (0.63 in.) plug wrench, install the spark plugs.
Torque: 25 N·m (225 kgf·cm, 18 ft·lbf)